



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D135-1027-253
Job Sheet 176211



Part No: D135-1027-253

Job Qty: 1 ea

Part Name: Mid Height Aft Crosstube



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 4/18/18

Job Tracking No:

Due Date: 4/26/18

Created By: Linda Lacelle

Type: R+D

Description:

Note: TBD D135-1027-253 REV.B IPP REV:A 17.01.24 NEW ISSUE DD VERF:JLM IPP REV:B 18.01.02 AS PER DWG REV.B DD VERF:JFS

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
110	Purchasing	1 pcs		4/23/18	0.00	0.00	Purchasing		
132	Crosstubes	1 pcs		4/24/18	0.00	1.00	Crosstube Grinding Booth		GP
135	QC	1 pcs		4/24/18	0.00	0.00	QC5		
140	Outsource	1 pcs		4/26/18			SKY002-VC	2	AT 18/4/25
150	Packaging	1 pcs		4/26/18	0.00	0.00	Packaging2		AT 18/4/25
160	QC	1 pcs		4/26/18	0.00	0.00	QC5		38
170	Packaging	1 pcs		4/26/18	0.00	0.00	Packaging3-1	L6050	APR 26 2018
180	QC21-FG	1 Ea		4/26/18	0.00	0.00	QC21		DAS APR 26 2018

Part Op 110 - Issue P/O to Tube Caron:

Manufacture D135-1027-253 as per dwg (Bend, Remove excess

Descriptions: material after bending, Drill) **Ship extrusion D6027-115** ***AS PER DWG NOTE 10, EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS.*** Material release note is required

132 - REMOVE ALL MARKS AS PER DWG

140 - ISSUE P/O: 039676 C OF C IS REQUIRED

150 - C OF C IS REQUIRED

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D135-1027-253P	Mid Height Aft Crosstube	1 pcs (1 ea)	110-Purchasing	5060852

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
110-Purchasing	D135-1027-253P	1	12	0

Part Specifications

Specifications could not be found.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Skid-tube ☐</td> <td style="width: 15%;">Cross tube ☐</td> <td style="width: 15%;">Water Jet ☐</td> <td style="width: 15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																		
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																		
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																		
Large Fab ☐	Composite ☐	Supplier ☐																			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval																	
Description Work Order Deviation			Disposition																		
			Completed By																		
			Lead hand / Supervisor Approval Verification																		

Root Cause		Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, ON K6A 1K7 CANADA TEL.: 1 813 832-5200 Email: sales@dartaero.com www.dartaero.com	
Environment ☐	No Re-verification ☐		
Design ☐	Operator ☐		
Doc/Data ☐	Offset/Setup ☐		
Equip/Tooling ☐	Supplier ☐		
Handling/Pre ☐	Training ☐		
Material ☐	Use for Testing ☐		
Internal Transport ☐	Poor Information ☐		
Tribal Knowledge ☐	Rushing ☐		
LOA ☐	Product Improvement ☐		
Substation ☐	Process Improvement ☐		
Past Expiry Date ☐	Manufacturing Process ☐		
Misidentified ☐	Past Due ☐		
			Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wav ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ OTHER : ☐



Container No: S062543



Part: D135 - 1027 - 253

Job No: 176211

Serial No/Batch: S062543

Revision: B

Inspector:

Date: 04/18/18

PO
38679



Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200

Purchasing Receipts

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	Past Due
PO037915	TUB001-VC	1	1	Net 30	Tooling	Tooling 3.543" (90 mm) Tooling Kit mandrels and wiper				2		2	RD17-1027-01		Inactive	11/14/2017	\$ 2000.00 / Ea	155	
PO038679	TUB001-VC	1	1	Net 30	D135-1027-253P	Mid Height Aft Crosstube As Per Dwg D135-1027-253 Rev. B				1	1/12/2018	1		S034181	Inactive	1/22/2018	\$ 600.00 / pcs	86	96
			2						2	4/13/2018	2		S062538	Stock	4/18/2018	\$ 300.00 / pcs	0		
		2	1						1	1/12/2018	1		S034182	Inactive	1/22/2018	\$ 600.00 / pcs	86	96	
		3								1		S034183	Inactive	1/22/2018	\$ 600.00 / pcs	86	96		
		4								1		S034184	Inactive	1/22/2018	\$ 600.00 / pcs	86	96		
		5			D135-1027-251P	Std Height Aft Crosstube As Per Dwg D135-1027-251 Rev. C				3/15/2018	1		S053489	Inactive	3/21/2018	\$ 600.00 / pcs	28		
			2						2	4/13/2018	2		S062540	Stock	4/18/2018	\$ 600.00 / pcs	0		
		6	1						1	3/15/2018	1		S060485	Engineering Use - testing	4/12/2018	\$ 600.00 / pcs	6		
		7								1		S060486	Engineering Use - testing	4/12/2018	\$ 600.00 / pcs	6			
		8								1		S060487	Engineering Use - testing	4/12/2018	\$ 600.00 / pcs	6			
		9			D135-1027-153P	Mid Height Fwd Crosstube As Per Dwg # D135-1027-153 Rev. B				1/12/2018	1		S034185	Inactive	1/22/2018	\$ 600.00 / pcs	86	96	
		10								1		S034186	Inactive	1/22/2018	\$ 600.00 / pcs	86	96		
		11								3/15/2018	1		S053490	Inactive	3/21/2018	\$ 600.00 / pcs	28		
		12									1		S062541	Stock	4/18/2018	\$ 300.00 / pcs	0		
			2								1		S062539	Stock	4/18/2018	\$ 300.00 / pcs	0		
		13	1		D135-1027-251P	Std Height Aft Crosstube As Per Dwg D135-1027-251 Rev. C				1/12/2018	1		S062498	Stock	4/18/2018	\$ 300.00 / pcs	0		
Total:										20		20							

Plex 4/18/2018 3:04 PM dart.Lacelle.Linda

DQA: _____ Date: _____



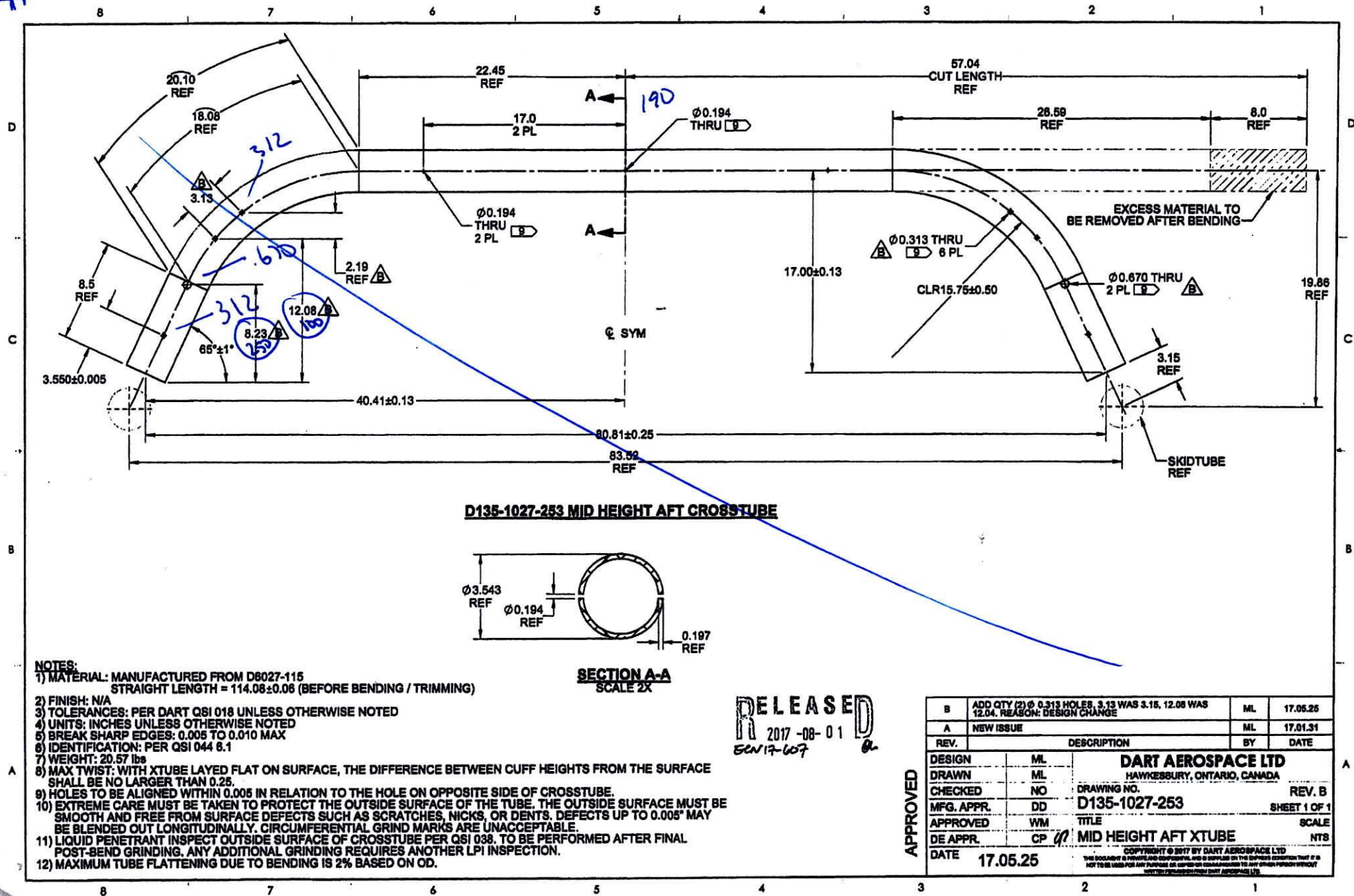
WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

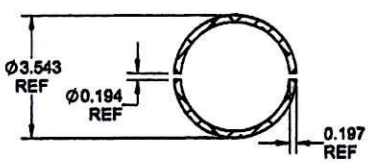
Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

11



D135-1027-253 MID HEIGHT AFT CROSSTUBE



SECTION A-A
SCALE 2X

NOTES:

- 1) MATERIAL: MANUFACTURED FROM D8027-115
STRAIGHT LENGTH = 114.08±0.06 (BEFORE BENDING / TRIMMING)
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: PER QSI 044 8.1
- 7) WEIGHT: 20.57 lbs
- 8) MAX TWIST: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE SHALL BE NO LARGER THAN 0.25.
- 9) HOLES TO BE ALIGNED WITHIN 0.005 IN RELATION TO THE HOLE ON OPPOSITE SIDE OF CROSSTUBE.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038. TO BE PERFORMED AFTER FINAL POST-BEND GRINDING. ANY ADDITIONAL GRINDING REQUIRES ANOTHER LPI INSPECTION.
- 12) MAXIMUM TUBE FLATTENING DUE TO BENDING IS 2% BASED ON OD.

RELEASED
2017-08-01
SCN 17-607

APPROVED

B	ADD QTY (2) Ø 0.313 HOLES, 3.13 WAS 3.15, 12.08 WAS 12.04. REASON: DESIGN CHANGE	ML	17.05.25
A	NEW ISSUE	ML	17.01.31
REV.	DESCRIPTION	BY	DATE
DESIGN	ML		
DRAWN	ML		
CHECKED	NO		
MFG. APPR.	DD		
APPROVED	WM		
DE APPR.	CP		
DATE	17.05.25		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO.
D135-1027-253

TITLE
MID HEIGHT AFT XTUBE

REV. B

SHEET 1 OF 1

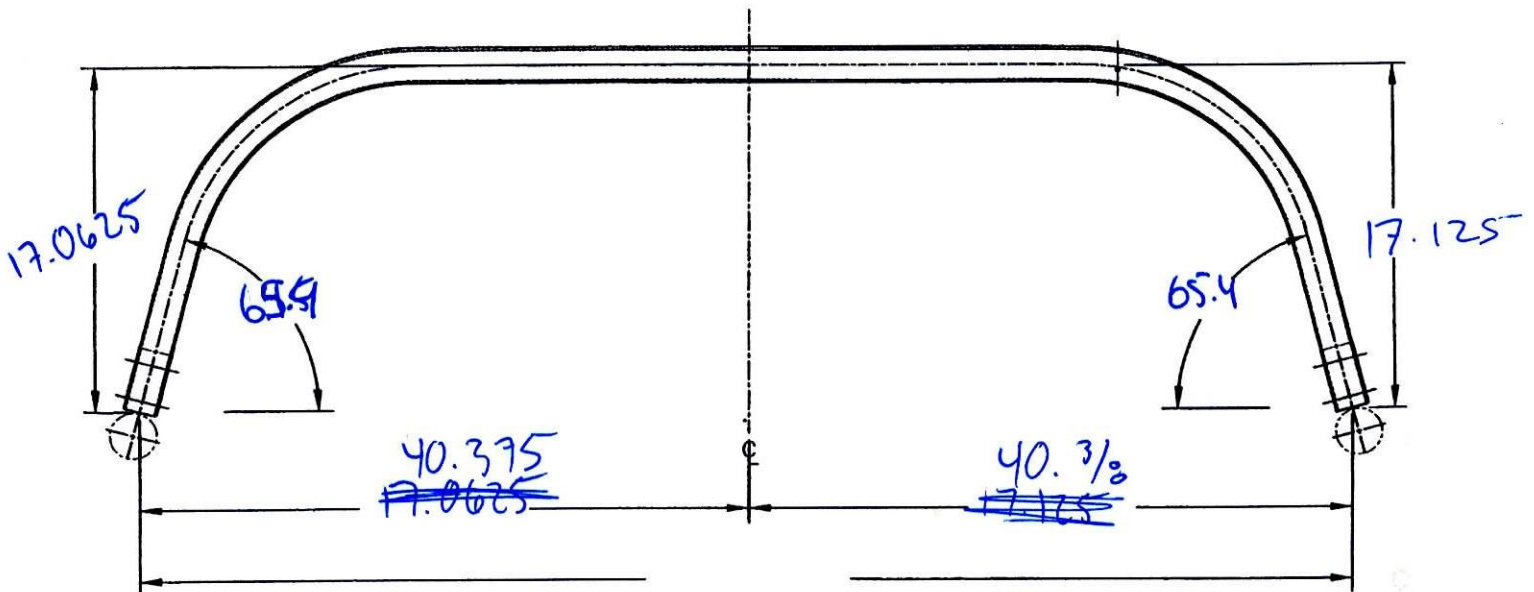
SCALE

NTS

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DART AEROSPACE LTD		Work Order:	
Description:		Part Number:	
Inspection Dwg:	Rev:	Page 1 of 1	

Required Dimension	Min	Max
Height		
1/2 Span		
Angle		
Total Span		
Bending Passes		
Crushing		



	Side A	Side B
Bending Passes		
Crushing	.32	.21
Comments		

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A		New Issue		
B	06.09.19	Reformat; QC level revised	KJ/JM	
C	07.02.06	Reformat	KJ/JM	
D	12.02.15	Added bending passes and crushing	KJ	
E	12.03.07	Revised comments table	KJ	



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039676**

Supplier: SKY002-VC
Skyservice
6120 Midfield Road
Mississauga
ON
L5P 1B1 Canada
Phone: 905-678-5636
Fax: 905-678-5841

PO No: PO039676
PO Date: 4/23/18
Due Date:
Purchase Order
Revision:
Revision Date:
Ship-To Contact: Phone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	169678	D135-1027-153	Mid Height Fwd Crosstube ISSUE P/O: _____ C OF C IS REQUIRED	Firmed		1 pcs	0 pcs	1 pcs	\$167.00/pcs	\$167.00
	169677			Firmed		1 pcs	0 pcs	1 pcs	\$167.00/pcs	\$167.00
Sub Total:						2	0	2		\$334.00

2	169671	D135-1027-253	Mid Height Aft Crosstube ISSUE P/O: _____ C OF C IS REQUIRED	Firmed		1 pcs	0 pcs	1 pcs	\$167.00/pcs	\$167.00
	169670			Firmed		1 pcs	0 pcs	1 pcs	\$167.00/pcs	\$167.00
	176211			Firmed		1 pcs	0 pcs	1 pcs	\$167.00/pcs	\$167.00
Sub Total:						3	0	3		\$501.00

Grand Total: **\$835.00**

Order Notes

rec'd AT 18/4/18

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

**skyservice****Work Order Traveler**
Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO35758	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO39676
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT LIQUID PENETRANT INSPECTION ON FIVE MID HEIGHT AFT CROSSTUBES P/N
: D135-1027-253 AS PER PO : PO39676

- 1 - JOB SHEET : 176211 2 - JOB SHEET : 169678
3 - JOB SHEET : 169677 4 - JOB SHEET : 169671
5 - JOB SHEET : 169670

Action Taken:	Date:	Initial/Stamp:
LIQUID PENETRANT INSPECTION CARRIED OUT AS PER ASTM E-1417M-13 NO CRACK FOUND PEN. ZL-56, MPO13600, UV M-20141, CLEANER SKC-S MPO13923 , DEV. MPO11715	APR 23 2018	LM 

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp	Date:
Name: LUC MARCHETTI		APR 23 2018